



Objective

Two Switch High-Voltage BiCMOS Current-Mode PWM Controller

Ordering Information

Package Options			
20 Pin Plastic DIP	20 Pin Ceramic DIP	20 Pin Plastic PLCC	DICE
HV9220P	HV9220C	HV9220PJ	HV9220X

Standard temperature range for all parts is industrial (-40° to +85°C).
For military temperature range parts (-55° to +125°C) contact factory.

Features

- ☐ Operation to 2MHz
- ☐ Self-starting with 10V to 450V input
- ☐ Easy synchronization with PFC ICs
- ☐ Low power high speed BiCMOS
- ☐ Available in surface mount and chip form
- ☐ Two 1.5A CMOS outputs
- ☐ 1% trimmed bandgap reference
- ☐ Oscillator accuracy $\pm 1\%$
- ☐ Customer-set undervoltage ON and OFF

Applications

- ☐ Medium to high power converters/inverters
- ☐ Very compact power converters
- ☐ High efficiency converters
- ☐ High frequency power converters

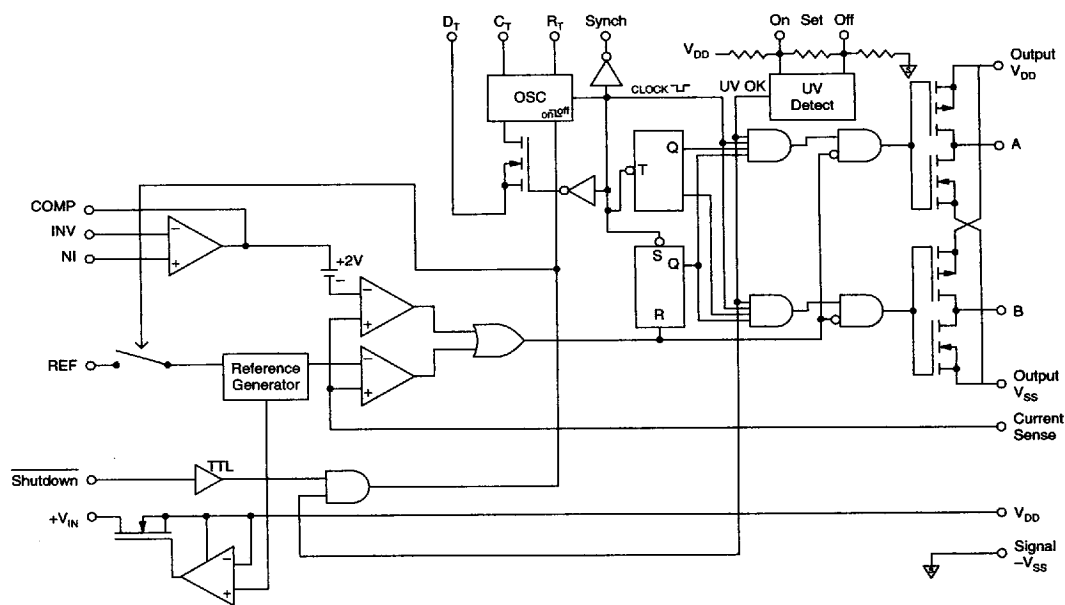
General Description

The Supertex HV9220 is a two-output, medium-speed BiCMOS, current-mode PWM IC. It is intended for use in next generation tow- and four-switch fixed frequency switchmode power converters. On-board functions include: a 1% accurate clock oscillator capable of operating to well beyond 2MHz, with synchronization port and deadtime control; a 1% accurate, loadable, trimmed bandgap reference; fully latched steering and modulation logic, with double pulse prevention; two 1.5A peak totem-pole outputs; an undervoltage circuit where trip point and hysteresis are both user-programmable; a fast current sensing circuit; a >2MHz bandwidth fully accessible error amplifier; a direct-from-high-voltage starting circuit; and a TTL-compatible remote shutdown circuit.

The use of separate ground pins for linear and switching sections of the IC, assisted by the use of bipolar transistors where needed, allows exceptionally precise low noise operation of the linear sections. The DMOS output structure, with fast body diodes, eliminates the need for protective clamping diodes on the outputs, accepts inductive kickbacks (up to peak output current) without damage, and allows the unit to drive either MOSFETs or gate transformers unassisted. The high voltage input MOSFET allows direct self-starting from any input from 10V to 450V without the need for a housekeeping power supply. The industry's first 1% accurate clock allows better control over magnetics sizes than has previously been the case, and aids in the production of medium-stability inverters. The circuit is built on an EPI layer to eliminate the possibility of latchup from inductive ringing or low-level radiation.

Functional Block Diagram

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